

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claim 1 (previously and currently amended): A vortex inhibitor for molten metal pouring from a discharge nozzle comprising:

a uniform castable refractory body having a generally tapering shape along a longitudinal axis from a base toward a narrow end and a hollow chamber positioned longitudinally to the body extending within the body; and

an elongated sacrificial member constructed to dissolve before substantially obstructing the discharge nozzle and retained by the hollow chamber to form an integral body;

whereby the integral body combining the refractory body and the sacrificial member has a specific gravity of about 3.5 to about 7.0 ~~less than the specific gravity of molten metal~~, and is self-orienting in a narrow end downward position when supported in molten metal.

Claim 2 (original): The vortex inhibitor of claim 1 wherein protrusions extending outwardly from the sacrificial member mount in the hollow chamber to form an integral body.

Claim 3 (original): The vortex inhibitor of claim 1 wherein crimps extending outwardly from the sacrificial member mount in the hollow chamber to form an integral body.

Claim 4 (previously amended): The vortex inhibitor of claim 1 wherein molten metal is disposed within the hollow chamber upon introduction into the metal receptacle.

Claim 5 (original): The vortex inhibitor of claim 1 wherein the sacrificial member is hollow.

Claim 6 (original): The vortex inhibitor of claim 1 wherein the sacrificial member is a solid bar.

Claim 7 (presently amended): The vortex inhibitor of claim 1 wherein an exposed surface of the sacrificial member is coated with a refractory material having a refractory coating thickness.

Claim 8 (presently amended): The vortex inhibitor of claim 7 wherein the refractory coating thickness is less than about 9 millimeters ~~4 wherein the sacrificial member is coated with a refractory material~~.

Claim 9 (original): The vortex inhibitor of claim 3 wherein the sacrificial member is filled with a refractory material.

Claim 10 (original): The vortex inhibitor of claim 1 wherein the body includes a complex polygonal base.

Claim 11 (original): The vortex inhibitor of claim 1 wherein the base is hexagonal.

Claim 12 (original): The vortex inhibitor of claim 1 wherein the base is octagonal.

Claim 13 (previously amended): A vortex inhibitor for molten metal pouring from a discharge nozzle comprising:

a uniform castable refractory body having a generally tapering shape along a longitudinal axis from a base toward a narrow end and a shaft positioned longitudinally to the body extending within the body; and

an elongated sacrificial member constructed to dissolve before substantially obstructing the discharge nozzle and retained by the shaft to form an integral body;

whereby the integral body combining the refractory body and the sacrificial member has a specific gravity of about 3.5 to about 7.0 ~~less than the specific gravity of molten metal~~, and is self-orienting in a narrow end downward position when supported in molten metal.

Claim 14 (original): The vortex inhibitor of claim 13 wherein the shaft is hollow.

Claim 15 (original): The vortex inhibitor of claim 13 wherein the shaft is solid.

Claim 16 (original): The vortex inhibitor of claim 14 wherein the sacrificial member contains external screw threads.

Claim 17 (original): The vortex inhibitor of claim 15 wherein the sacrificial member contains external screw threads.

Claim 18 (original): The vortex inhibitor of claim 16 wherein an end of the shaft contains internal screw threads, wherein the external screw threads on the sacrificial member and internal screw threads are matable.

Claim 19 (original): The vortex inhibitor of claim 14 wherein the sacrificial member contains internal screw threads and an end of the shaft contains internal screw threads.

Claim 20 (original): The vortex inhibitor of claim 19 further comprising a nipple with external screw threads at each end, wherein the nipple mates the sacrificial member with the shaft.

Claim 21 (original): The vortex inhibitor of claim 17 wherein an end of the shaft contains external screw threads.

Claim 22 (original): The vortex inhibitor of claim 21 having a coupling containing internal screw threads, wherein the coupling mates the sacrificial member with the shaft, whereby the body and the sacrificial member combination form an integral vortex inhibitor.

Claim 23 (original): The vortex inhibitor of claim 13 wherein the sacrificial member is hollow.

Claim 24 (original): The vortex inhibitor of claim 23 wherein the sacrificial member is positioned snugly over the shaft.

Claim 25 (original): The vortex inhibitor of claim 13 wherein the shaft extends partially within the body.

Claim 26 (previously presented): A method for improving yield of molten metal poured from a discharge nozzle of a metal pouring vessel, the method comprising:

introducing a vortex inhibitor having a uniform castable refractory body having a generally tapering shape along a longitudinal axis from a base toward a narrow end and a hollow chamber longitudinally to the body extending within the body and an elongated sacrificial member retained by the hollow chamber to form an integral body, whereby the integral body combining the refractory body and the sacrificial member has a specific gravity less than the specific gravity of molten metal, and is self-orienting in a narrow end downward position when supported in molten metal; and

maintaining the vortex inhibitor in the metal pouring vessel during at least a portion of the metal pour, while dissolving the elongated sacrificial member before substantially obstructing the discharge nozzle.

Claim 27 (previously presented): The method of claim 26 wherein said dissolving step occurs before discharge of molten metal is terminated.

Claim 28 (previously presented): The method of claim 26 wherein said dissolving step occurs before the discharge nozzle is closed.

Claim 29 (previously presented): The method of claim 26 wherein said dissolving step occurs before entering the discharge nozzle.

Claim 30-35 (canceled)

Claim 36 (previously presented): A method for improving yield of molten metal poured from a discharge nozzle of a metal pouring vessel, the method comprising:

introducing a tapering uniform castable refractory body having a hollow chamber positioned longitudinally to the body extending within the body and an elongated sacrificial member retained by the hollow chamber to form an integral body, whereby the integral body combining the refractory body and the sacrificial member has a specific gravity less than the specific gravity of molten metal, and is self-orienting in an elongated sacrificial member downward position when supported in molten metal; and

maintaining the tapering uniform castable refractory body in the metal pouring vessel during at least a portion of the metal pour, while dissolving the elongated sacrificial member before substantially obstructing the discharged nozzle.

Claim 37 (previously presented): The method of claim 36 wherein said dissolving step occurs before discharge of molten metal is terminated.

Claim 38 (previously presented): The method of claim 36 wherein said dissolving step occurs before the discharge nozzle is closed.

Claim 39 (previously presented): The method of claim 36 wherein said dissolving step occurs before entering the discharge nozzle.

Claim 40 (new): The vortex inhibitor of claim 1 wherein the specific gravity of the elongated sacrificial member is in the range of about 3.5 to about 7.9.

Claim 41 (new): The vortex inhibitor of claim 13 wherein the specific gravity of the elongated sacrificial member is in the range of about 3.5 to about 7.9.